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□
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QM02/0211

| EXAMINER | |
|-----------|--------------|
| NGUYEN, D | |
| ART UNIT | PAPER NUMBER |

3752

DATE MAILED: 02/11/00

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/292,152

Applicant(s)

Michael A. Fischer

Examiner

Dinh Nguyen

Group Art Unit

3752

☒ Responsive to communication(s) filed on Apr 15, 1999

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-21 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-9 and 11-21 is/are rejected.

☒ Claim(s) 10 is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2,4,5,6,7

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

Art Unit: 3752

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 1, line 8, “which is now pending” should read -- abandoned--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not provide examples of testing the sprinkler arrangement with NFPA Class I, Class II, Class III, Class IV, Group A, Group B, Group C plastic commodities. All of these various commodities have different fire characteristics and would not necessarily be protected by the sprinkler arrangement as disclosed without undue experimentation. Also the

Art Unit: 3752

specification does not disclose if the fire tests were conducted in according to and met any Factory Mutual and Underwriter's Laboratory for NFPA Group A, Group B, Group C plastic commodities.

In regard to the pressure claimed, 15 psi, it is not clear from the specification if the pressure is the minimum operating pressure for the most remote sprinkler or whether this is the water supply pressure. It appears from the specification that a water supply at this pressure was provided to the sprinkler in the tests. However, since the pipe sizes used in the tests were not given which are essential to the instant invention for operating as the specified pressure, one of ordinary skill in the art would not be able to design such a sprinkler arrangement without undue experimentation in pipe size changes. This is because of the friction loss that results in relation to pipe sizes, pipe fittings and pipe lengths. In order to maintain an operating pressure and a water supply pressure of 15 psi, very large pipe sizes would be warranted which increase the cost of installation.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 1 and 21, there are no limitations in reciting the height of the storage commodities above the floor, how the commodities are stored on the pallets (i.e.

Art Unit: 3752

encapsulated or unencapsulated); type of racks (i.e. metal or wood; solid or slatted shelving); the height of the storage space itself; aisle spacing between the racks; the pipe sizes used; the design density and the size of the design area. All of the limitations are considered essential elements and have an impact on whether the fire protection sprinkler as claimed will protect the storage commodities and such omission amounting to a gap between the elements.

For example, a warehouse containing encapsulated commodities in rack storage over 25 feet high and a ceiling height over 30 feet high may not be protected by the claimed sprinkler, since the claimed pressure may not be sufficient to penetrate a fire in the rack. The type of racks arrangement is important since a wood rack would contribute to the fire. The spacing between the racks is also essential to the claimed sprinkler, since closely spaced racks may enable the spread of fire between the racks and so may require larger sprinkler densities. The design area is essential to the sprinkler arrangement, since one of ordinary skill in the art would not know the number of sprinklers to calculate determining the required water flow demand. The size of the pipes used is essential, since this determines whether the available water supply pressure provided will be adequate to have operating pressure of 15 psi.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

Art Unit: 3752

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by NFPA 13.

In NFPA 13, the standard clearly discloses that ESFR sprinklers can be design to operate at a nominal K factor of 13.5-14.5, and a design pressure of 50 psi as shown in page 120, table A-5-3.5.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-9, 11-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over NFPA 13 in view of Meyer et al.

NFPA 13 teaches all the limitations of the claims except for a first type and a second type of reentrant slots. Meyer discloses a first type of reentrant slots 44 and a second type of reentrant slots 45 as shown in figure 2. It would have been obvious to one having ordinary skill in the art to have provided the fire protection sprinkler of NFPA 13 with first type and a second type of reentrant slots as suggested by Meyer, since it would provide a uniform distribution densities of fluid around and beneath the sprinkler.

Art Unit: 3752

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over NFPA 13 in view of Meyer et al. as applied to claims 2-9, 11-18 and 20 above, and further in view of Bower.

NFPA 13 in view of Meyer teach all the limitations of the claims except for a second plurality of re-entrant slots which are pear-shaped. Bower shows a deflector 11 with a plurality of pear-shaped reentrant slots. It would have been obvious to one having ordinary skill of the art to have provided the deflector of Meyer with a second plurality of pear-shaped re-entrant slots as shown by Bower since it would provide a pattern of spray that can suitably cover an intended area to be protected by a sprinkler from fire.

Allowable Subject Matter

11. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to show the art with respect to various related to a fire protection sprinkler: Martin, and Livingston.

Art Unit: 3752

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dinh Nguyen whose telephone number is (703) 305-0248.

dqn

February 9, 2000


ANDRES KASHNIKOW
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

2/10/00